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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
NGUYEN, KEVIN M	

ART UNIT	PAPER NUMBER
2674	

DATE MAILED: 11/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No.	Applicant(s)	
	09/818,081	GETTEMY ET AL.	
	Examiner	Art Unit	
	Kevin M. Nguyen	2674	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 July 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Applicant's remarks filed on 07/12/2004 of the rejection of the last Office action have been fully considered and are persuasive and, therefore, the rejection of that action is withdrawn. However, claims 1-29 have been rejected in view of the previously discovered references to Taniguchi (previously cited) in view of Yokota et al (previously cited, US 6,181,313). Rejections based on the previously cited references follow.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1-29 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

3. As per claims above, the application does not disclose the limitations "a fixed pixel border having a predetermined width", as recited in claims 1-3, 10, 13, 14, 19 and 20, "a fixed dimension of n rows and m columns," recited in claim 25.

4. The entire application, especially page 19, lines 11-12, as indicated by the applicant, only discloses that "the pixel border region 312 is arbitrary." Page 21, lines 15-16, "in this example, x=2, but could be any width in accordance with the present invention." Page 18, lines 14-15, region 314 (fig. 7) is the frame buffer pixel region and

contains a matrix of discrete pixels oriented in n rows and m columns according to a variety of display dimensions and formats."

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1-5, 8, 13-16, 19-23, 25, 26, 28, 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taniguchi in view of Yokota et al.

6. As to claims 1, 25, Taniguchi teaches a display unit 11 (fig. 1) comprising a passive matrix of pixels yd0-yd203 rows (fig. 1) and xd0-xd655 columns (fig. 1) of discrete pixels, a XD driver (fig. 1), a YD driver (fig. 1), an inherent display data memory;

a pixel border comprises non-display regions B having a predetermined width B1, B2, B3, B4, B5, B6 (fig. 1), the non-display regions surrounding the effective display region A (fig. 1);

a plurality of pixels (non-display regions B1, B2, B3, B4, B5, B6, fig. 1) is controlled between on (white state) and off state (black state) (see col. 5, lines 6-15).

Accordingly, Taniguchi teaches all of the claimed limitations of claims 1, 25, except for a plurality of pixels which are uniformly controlled between an on and an off state by a common threshold signal.

However, Yokota et al teaches a display unit comprising any dot was controlled by the voltage obtained by subtracting the potential of the segment signal from the potential of the common signal, exceeds the threshold value of the liquid crystal (col. 14, lines 47-50).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Taniguchi's control circuit including controlling by a common threshold signal, in view of the teaching in Yokota's reference because this would prevent crosstalk of the image being displayed as taught by Yokota (col. 3, lines 41-42), while fabricating the liquid crystal display controller at low cost as taught by Yokota (col. 3, lines 55-56).

7. As to claim 13, Taniguchi teaches a display unit 11 (fig. 1) comprising a passive matrix of pixels yd0-yd203 rows (fig. 1) and xd0-xd655 columns (fig. 1) of discrete pixels, XD drivers (fig. 1), YD drivers (fig. 1), an inherent display data memory;

a pixel border comprises non-display regions B having a predetermined width B1, B2, B3, B4, B5, B6 (fig. 1), the non-display regions surrounding the effective display region A (fig. 1);

a plurality of pixels (non-display regions B1, B2, B3, B4, B5, B6, fig. 1) is controlled between on (white state) and off state (black state) (see col. 5, lines 6-15);

Accordingly, Taniguchi teaches all of the claimed limitations of claim 13, except for "a contrast adjustment circuit for adjusting voltage levels supplied to said row and column drivers to adjust the contrast of said image of said passive matrix, wherein said

contrast adjustment circuit is also operable to adjust said common threshold signal to match the contrast of said passive matrix."

However, Yokota et al teaches, as noting in Fig. 1 and Fig. 14A, an instruction register 5 (fig. 1) is detailed in fig. 14A comprising a contrast-adjust-circuit 39 (fig. 14A, col. 13, line 64 through col. 14, lines 3) coupling to a common driver 16 (fig. 1) via a common shift register 15 (fig. 1). The contrast-adjust-circuit 39 couples to segment driver 14 (fig. 1) via a liquid crystal display driver voltage selector 19 (fig. 1) and via a liquid crystal drive bias circuit 18 (fig. 1) which was controlled by the voltage obtained by subtracting the potential of the segment signal from the potential of the common signal, exceeds the threshold value of the liquid crystal (col. 14, lines 47-50).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Taniguchi's control circuit including controlling a contrast by a common threshold signal, in view of the teaching in Yokota's reference because this would improve the quality of the border image being displayed at taught by Yokota (col. 3, lines 41-42), while fabricating the controller at low cost as taught by Yokota (col. 3, lines 55-56).

8. As to claim 19, Taniguchi teaches a display unit 11 (fig. 1) comprising a passive matrix of pixels yd0-yd203 rows (fig. 1) and xd0-xd655 columns (fig. 1) of discrete pixels, XD drivers (fig. 1), YD drivers (fig. 1), an inherent display data memory;

a pixel border comprises non-display regions B having a predetermined width B1, B2, B3, B4, B5, B6 (fig. 1), the non-display regions surrounding the effective display region A (fig. 1);

a plurality of pixels (non-display regions B1, B2, B3, B4, B5, B6, fig. 1) is controlled between on (white state) and off state (black state) (see col. 5, lines 6-15).

Accordingly, Taniguchi teaches all of the claimed limitations of claim 19, except for a processor, a bus, a memory unit, and a user input device, and a plurality of pixels which are uniformly controlled between an on and an off state by a common threshold signal.

However, Yokota et al teach a portable electronic device (fig. 15A) comprising a processor 3 (fig. 15A), bus (wires 51, 54, fig. 15A), a memory unit 7 (fig. 1), a user input device 52 (figure 15A, col. 15, lines 1-14), and any dot was controlled by the voltage obtained by subtracting the potential of the segment signal from the potential of the common signal, exceeds the threshold value of the liquid crystal (col. 14, lines 47-50).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Taniguchi's control circuit including the processor, bus, the memory unit, the user input device and the border pixel controlling by a common threshold signal, in view of the teaching in Yokota's reference because this would prevent crosstalk of the image being displayed at taught by Yokota (col. 3, lines 41-42), while fabricating the liquid crystal display controller at low cost as taught by Yokota (col. 3, lines 55-56).

As to claims 2, 20, 28, Yokota et al teaches, as noting in Fig. 1 and Fig. 14A, an instruction register 5 (fig. 1) is detailed in fig. 14A comprising a contrast-adjust-circuit 39 (fig. 14A, col. 13, line 64 through col. 14, lines 3) coupling to a common driver 16 (fig. 1) via a common shift register 15 (fig. 1). The contrast-adjust-circuit 39 couples to segment

driver 14 (fig. 1) via a liquid crystal display driver voltage selector 19 (fig. 1) and via a liquid crystal drive bias circuit 18 (fig. 1) which was controlled by the voltage obtained by subtracting the potential of the segment signal from the potential of the common signal, exceeds the threshold value of the liquid crystal (col. 14, lines 47-50).

As to claims 3, 14, 21, 29, Taniguchi teaches a foreground comprising the desired characters or figures displayed on the screen 11a can be seen from the front side of the screen 11a (col. 5, lines 34-37). A white background comprises when the display screen 11a is of the normally white type, on the other hand, the non-display region B1 becomes bright so that the black frame disappears (col. 5, lines 47-49).

As to claims 4, 5, 15, 22, Taniguchi teaches a passive matrix is negative mode liquid crystal display 11 technology (col. 3, line 60) is super twisted nematic.

As to claims 8, 16, 23, Yokota et al teaches the voltage (a driver signal and a single control signal) obtained by subtracting the potential of the segment signal from the potential of the common signal, exceeds the threshold value of the liquid crystal (col. 14, lines 47-50).

As to claim 26, Taniguchi teaches the pixel border comprises non-display regions B having a predetermined width B1, B2, B3, B4, B5, B6 (fig. 1).

As to claims 11, 17, 27, Taniguchi teaches all the subject matter claimed limitations with the exception of particular size of "the predetermined width is two pixels." Absent a showing of criticality it would have been within the level of skill in the art and obvious to one having ordinary skill to engineering design the size of a well-known element is normally not directed toward patentable subject matter as desired as

was judicially recognized in re Rose, 105 USPQ 237 (CCPA 1955) and in re Reven, 156 USPQ 679 (CCPA 1968).

As to claims 12, 18 and 24, Taniguchi teaches all the subject matter claimed limitations with the exception of particular size of "said passive matrix comprises 160 rows and 160 columns of discrete pixels." Absent a showing of criticality it would have been within the level of skill in the art and obvious to one having ordinary skill to engineering design the size of a well-known element is normally not directed toward patentable subject matter as desired as was judicially recognized in re Rose, 105 USPQ 237 (CCPA 1955) and in re Reven, 156 USPQ 679 (CCPA 1968).

9. Claims 6, 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taniguchi in view of Yokota, and further in view of Morimoto (previously cited, US 6,535,188).

As to claim 6, Taniguchi and Yokota teach all of the claimed limitations of claim 1, except for "the passive matrix is electronic ink technology."

However, Morimoto teaches a liquid crystal display device including electronic ink 12 (figure 2, column 5, lines 19-20).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Taniguchi's display device including the electric ink technology in view of the teaching in Morimoto's reference because this would reduce the thickness fluctuation of liquid crystal layer and avoid an occurrence of a portion of a display image deterioration such as a deviation of contrast ratio (column 3, lines 25-28 of Morimoto).

As to claims 9, 10, Morimoto teaches each pixel including red, green, blue sub pixel sharing a common row and spanning three columns (see figure 1).

10. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Taniguchi in view of Yokota, and further in view of Colgan et al (previously cited, US 6,323,834).

As to claim 7, Taniguchi and Yokota teach all of the claimed limitations of claim 1, except for the passive matrix is microelectromechanical system technology.

However, Colgan et al teaches the passive matrix display 154, deformable mirrors 133 (figure 22, column 12, lines 23-26).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Taniguchi's display device including the passive matrix display 154, deformable mirrors 133, in view of the teaching in Colgan's reference because this would provide high reflectivity and good contrast ration while reducing manufacturing costs (column 7, lines 52 and line 63 of Colgan et al).

Response to Arguments

11. Applicant's arguments filed 07/12/2004 have been fully considered but they are not persuasive.

12. In response to applicant's argument that claims 1, 13, 19, 25 recite "a pixel border pixel border that surrounds the passive matrix is uniformly controlled by a common threshold signal."

This argument is not persuasive because Taniguchi teaches a display unit 11 (fig. 1) comprising a passive matrix of a pixel border which includes non-display regions B having a predetermined width B1, B2, B3, B4, B5, B6 (fig. 1), the non-display regions

surrounding the effective display region A (fig. 1). Yokota et al teaches any dot was controlled by the voltage obtained by subtracting the potential of the segment signal from the potential of the common signal, exceeds the threshold value of the liquid crystal (col. 14, lines 47-50).

These arguments are not persuasive because the modified teaching of Taniguchi's reference in view of the modified teaching of Yokota's reference provide the "substantial evidence" and established a prima facie case to produce and result the claimed limitations "a pixel border pixel border that surrounds the passive matrix is uniformly controlled by a common threshold signal."

13. In response to applicant's argument stated that "Taniguchi reference does not apply any voltage in the off state." This argument is not persuasive because Taniguchi teaches "become dark when driving voltage is being applied (col. 5, lines 22-23).

14. In response to applicant's argument that claims 13, 2, 20, 28 recite "a contrast adjustment circuit for adjusting voltage levels supplied to said row and column drivers to adjust the contrast of said image of said passive matrix, wherein said contrast adjustment circuit is also operable to adjust said common threshold signal to match the contrast of said passive matrix."

This argument is not persuasive because Yokota et al teaches, as noting in Fig. 1 and Fig. 14A, an instruction register 5 (fig. 1) is detailed in fig. 14A comprising a contrast-adjust-circuit 39 (fig. 14A, col. 13, line 64 through col. 14, lines 3) coupling to a common driver 16 (fig. 1) via a common shift register 15 (fig. 1). The contrast-adjust-circuit 39 couples to segment driver 14 (fig. 1) via a liquid crystal display driver voltage

selector 19 (fig. 1) and via a liquid crystal drive bias circuit 18 (fig. 1) which was controlled by the voltage obtained by subtracting the potential of the segment signal from the potential of the common signal, exceeds the threshold value of the liquid crystal (col. 14, lines 47-50).

For these reasons, the rejections based on Taniguchi and Yokota et al have been maintained.

Conclusion

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Kevin M. Nguyen** whose telephone number is **703-305-6209**. The examiner can normally be reached on MON-THU from 9:00-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Richard A Hjerpe** can be reached on **703-305-4709**.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered response should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Kevin M. Nguyen
Patent Examiner
Art Unit 2674

KN
November 18, 2004

XIAO WU
PRIMARY EXAMINER